Claims

1. Dispersion which contains particles of at least one intrinsically conductive polymer, wherein the particle size is on average (weight) less than 1 µm, **characterized in that** the dispersant is a liquid at room temperature, and a layer, film or sheet formed from this dispersion has a conductivity of > 100 S/cm after removal of the dispersant.

2. Dispersion according to claim 1, **characterized in that** the conductivity is at least 200 S/cm.

3. Dispersion according to claim 2, **characterized in that** the conductivity is 300 S/cm to 3000 S/cm.

4. Dispersion according to one of the previous claims 1 to 3, **characterized in that** the polymer is selected from the group consisting of polyaniline, polythiophene, polythienothiophene, polypyrrole, copolymers of the monomers of these polymers and polymers or copolymers of the derivatives of these monomers.

5. Dispersion according to one of the previous claims 1 to 4, **characterized in that** the dispersant has a relative viscosity of < 10,000.

6. Process for the preparation of a dispersion according to one of claims 1 to 5, in which in this sequence

   (a) an intrinsically conductive polymer is prepared from monomers, wherein the temperature during the polymerization is controlled such that it does not exceed a value of more than 5°C over the starting temperature,

   (b) the product from stage (a) is triturated and/or dispersed in the presence of a non-electrically con-

ductive, non-polymeric polar substance which is inert vis-à-vis the conductive polymer, applying adequate shearing forces, wherein the weight ratio between the conductive polymer and the polar substance is 2:1 to 1:10,

(c) the product from stage (b) is dispersed in a dispersant, wherein the weight ratio between the conductive polymer and the dispersant is less than 1 : 10.

7. Process according to claim 6, **characterized in that** at no time during the polymerization is the rate of the temperature rise during stage (a) more than 1 K/minute.

8. Process according to claim 7, **characterized in that** in stage (b) furthermore at least one non-conductive polymer is present.

9. Process according to claim 8, **characterized in that** the non-conductive polymer is a thermoplastic polymer.

10. Process according to one of claims 6 to 9, **characterized in that** the product from stage (b) is subjected to a post-treatment.

11. Process according to claim 10, **characterized in that** the portion of the polar substance or of the non-conductive polymer in the product from stage (b) is reduced during the post-treatment by washing or extraction.

12. Process according to one of claims 6 to 11, **characterized in that** solvents and/or auxiliaries are added which support the subsequent dispersion stage (c).

13. Process according to one of claims 6 to 12, **characterized in that** the product from stage (c) is subjected to a post-treatment.

14. Process according to one of claims 6 to 13, **characterized in that** viscosity regulators, wetting aids, matrix polymers, stabilizers, cross-linking auxiliaries, evaporation regulators and/or other auxiliaries and additives which support an optionally following shaping process are added.

15. Process according to claim 14, **characterized in that** the addition takes place before or during stage (c).

16. Process according to one of claims 6 to 15, **characterized in that** during the post-treatment of the product of stage (b) and/or during dispersion stage (c) an organic solvent is used which has a surface tension of more than 25 mN/m.

17. Process according to one of claims 9 to 16, **characterized in that** the concentration of the conductive polymer increases during the post-treatment of the product from stage (b) by at least 5 wt.-%, relative to the constituents solid at room temperature.

18. Process according to one of claims 6 to 17, **characterized in that** the dispersion stage(s) is or are carried out in a dispersion device selected from the grouping consisting of a ball mill, a bead mill, a three-roll mill and a high-pressure dispersion device.

19. Process according to one of claims 6 to 17, **characterized in that** the dispersion is carried out under ultrasound.

20. Use of a dispersion according to one of claims 1 to 5 or prepared according to the process according to one of claims 6 to 19 for the preparation of mouldings, self-supporting films or coatings with electric conductivity.

21. Use according to claim 20, **characterized in that** the mouldings, self-supporting films or coatings are

electrodes, antennae, polymeric electronics components, capacitors and double-layer capacitors (DLC).